MARINE
RECREATIONAL INFORMATION
PROGRAM

FY Project Plan

Addressing MRIP Recommendations for the Puget Sound Recreational Fishery Monitoring Program

Created on

1. Overview

1.1. Background

Comprehensive and sound management of recreational finfish fisheries in Washington State requires critically-needed information on catch, effort, and stock-specific fishery impacts required to meet established conservation and allocation mandates. Without these data, recreational fisheries could not be opened and managed, especially considering the need to limit and monitor impacts to threatened species. For the Marine Catch Areas of Puget Sound (Areas 5-13), these critical fishery information needs are met through the Washington Department of Fish and Wildlife (WDFW) Puget Sound Sampling Unit's (PSSU) recreational fishery monitoring program.

To produce estimates of marine fish catch and effort in Puget Sound Marine Catch Areas (i.e., for the "private boat" mode), WDFW employs a procedure based on data collected by two independent surveys -- i) the access point intercept survey and ii) the telephone survey (see Lee et al.'s draft 2010 document). The WDFW Puget Sound Sampling Program conducts the access point intercept survey, providing data to estimate the catch-per-unit-effort (CPUE) and the proportion of anglers without fishing licenses (primarily juveniles that are 14 years of age and younger and exempt from the fishing license requirement). A telephone survey based on the Washington Interactive Licensing Database (WILD) provides data for estimating fishing effort made by licensed anglers. The combined results from the two surveys are used to generate estimates of total catch and effort by Marine Catch Area in two-month increments ("waves"), and these estimates are provided to the Recreational Fishery Information Network (RecFIN, www.recfin.org). Our proposed project will focus on implementing improvements to the intercept survey portion of the WDFW marine fish catch estimation design.

1.2. Project Description

We propose a project to implement the strategies and recommended actions resulting from the Marine Recreational Information Program's (MRIP) recent review of WDFW PSSU's recreational fishery monitoring program. During their November 2010 review, the MRIP consultants (experts in sampling design, statistics, and estimation methods) recommended specific actions that PSSU could implement to improve the statistical rigor of our monitoring designs and estimation approaches. Our proposed project requests funds to implement several of the MRIP consultants' recommendations, as detailed below.

Currently, the PSSU conducts both "Intensive" and "Baseline" sampling designs. Intensive Sampling is limited to special studies (e.g., in-season catch and effort estimates for mark-selective Chinook salmon fisheries in specific areas), while Baseline Sampling is conducted year-round. Intensive designs incorporate comprehensive and complementary sampling components such as dockside angler interviews with catch sampling (two sites selected per sample day using randomized probability-proportional-to-size [PPS] methods; 5 sample days/week with all-day sampler coverage; i.e., the Murthy Estimator method) to produce catch and effort estimates, as well as on-water effort surveys, test fishing to acquire fish encounter rate data by species (and by

size/mark status for Chinook and coho salmon), and angler-completed voluntary trip reports. In contrast, Baseline Sampling incorporates an opportunistic approach to dockside sampling in which samplers strive to sample maximum angler effort per sampling event (site-day assignment), and samplers make sure to employ a random approach to sample anglers/boats when at a site. With the Baseline design, samplers are not required to stay all day at the same site, in contrast to the Intensive design. Rather, samplers are staffed at access sites based on the PSSU's veteran sampling supervisors' knowledge of fisheries and anticipated effort trends, as well as tidal patterns and other variables on a given sample day. We are able to provide more detailed information on the PSSU's current procedures for conducting Baseline versus Intensive Sampling is provided. Several of the MRIP consultants' recommendations for PSSU revolved around improving the scientific rigor of the Baseline Sampling design. The consultants recommended incorporating a site selection approach for the Baseline design that is scientifically defensible and repeatable rather than the current approach based on the sampling supervisors' discretion; i.e., a randomized, formalized probability-proportional-to-size (PPS) approach could be designed for selecting Baseline sampling sites, similar to the approach PSSU currently uses for selecting Intensive sampling sites. Also, the consultants recommended refining PSSU's database structure to enable distinguishing Baseline versus Intensive records in the recreational fishery database. In addition, they recommended adding a field to the recreational database that would contain the probability value (site "size measure") used for selecting Baseline and Intensive sampling sites.

Thus, based on the MRIP consultants' recommendations, we would use the requested funds to achieve the following objectives and supporting activities:

1) Develop and implement a randomized, formalized site selection procedure for the PSSU's Baseline Sampling design, modeled after our probability-proportional-to-size (PPS) approach for selecting sites during Intensive Sampling studies.

2) Refine PSSU's database structure to address the MRIP consultants' recommendations – i.e., create a method to distinguish Baseline versus Intensive sampling records in the recreational database, and create a new field in the database to contain probabilities of site selection.

1.3. Objectives

To improve the scientific rigor of monitoring and estimation aproaches within the Washington Department of Fish and Wildlife's Puget Sound Recreational Fishery Monitoring Program

1.4. References

2. Methodology

2.1. Methodology

1) Develop and implement a randomized, formalized site selection procedure for the PSSU's Baseline Sampling design, modeled after our probability-proportional-to-size (PPS) approach for selecting sites during Intensive Sampling studies.

Activities:

(a) Obtain the staff time (two months, to work on both Objectives 1 and 2) of one existing WDFW permanent Information Technology Specialist IV position to work on the necessary programming in "R" to create a probability- proportional-to-size (PPS) site selection program for use in implementing the Baseline Sampling design;

(b) Incorporate the PSSU Database Manager's time to develop Baseline site probabilities for each two-month "wave" period in the current year, based on the previous year's proportions of site-days sampled (i.e., "site size measures" to reflect sampling supervisors' probabilities of site selections the previous year) per Marine Catch Area and per corresponding two-month wave; and

(c) Implement training sessions for PSSU's 4 Sampling Supervisors (North Sound, Central Sound, South Sound, and Peninsula/Strait Juan de Fuca) to train the supervisors on how to use the in PPS-based computer program to select Baseline sampling sites each week and schedule their sampling staff accordingly.

2) Refine PSSU's database structure to address the MRIP consultants' recommendations – i.e., create a method to distinguish Baseline versus Intensive sampling records in the recreational database, and create a new field in the database to contain probabilities of site selection.

Activities:

(a) Obtain the staff time (two months, to work on both Objectives 1 and 2) of one existing WDFW permanent Information Technology Specialist IV position. This position will work with the PSSU Database Manager to refine and improve the recreational database structure so that Baseline versus Intensive sampling records can be distinguished in the database. Additional improvements to the database will be implemented to further refine the marine fish estimation procedure, such as setting up a relational database platform using Structured Query Language.

(b) Incorporate the PSSU Database Manager's time, in collaboration with the ITS4 position as needed, to develop and populate a new field in the recreational fishery database to house the probability of site selection value for both Baseline and Intensive Sampling records; these site

selection probability data will be incorporated into later estimation steps (i.e., see Lee et al. 2010) to generate total effort and catch estimates (by Area, species, mode, etc.) that are ultimately available via the PSMFC's online RecFin database.

2.2. Regions

2.3. Geographic Coverage

Puget Sound, Washington

2.4. Temporal Coverage

Year-round

2.5. Frequency

Described above in the Project description

2.6. Unit of Analysis

Described in sampling methodology.

2.7. Collection Mode

Intercept/access site

3. Communications Plan

3.1. Internal

Internal communications will consist of monthly meetings (in-person and/or conference calls) to share information, discuss accomplishments to date, and ensure that we are on track for completing key project milestones and objectives per the timeline shown in section 8.1. Additionally, a monthly summary report will be distributed via email to the project team detailing the weekly site selection results along with associated probability values (site “weights”), for both baseline and intensive sampling designs. The internal project team will also receive a copy of the bi-monthly marine fish catch estimates that are provided externally as well as the detailed final report (described below).

3.2. External

Periodic reporting to the MRIP Operations Team will occur through emailing of monthly progress reports (using the MRIP monthly report template) that will summarize progress made to date on the project. In addition, catch estimates for two-month wave periods will be provided to the Pacific States Marine Fisheries Commission for incorporation into the RecFIN database; these estimates will be provided within 30 days of the end of each two-month wave period (by November 30, 2011, January 30, 2012, March 30, 2012, and May 30, 2012). We will submit a detailed final report to the MRIP Operations Team by September 30, 2012.

4. Assumptions and Constraints

4.1. New Data

No

4.2. Track Costs

4.3. Funding Vehicle

4.4. Data Resources

Only WDFW data resources will be required.

4.5. Other Resources

Project time for existing WDFW staff.

4.6. Regulations

No regulatory changes are required.

4.7. Other

The primary assumptions of this project are related to key steps that must be taken to achieve the project objectives of: 1) develop and implement a randomized, formalized site selection procedure for the PSSU's Baseline Sampling design, modeled after our probability-proportional-to-size (PPS) approach for selecting sites during Intensive Sampling (Murthy design) studies; and 2) refine and improve the PSSU's recreational fishery database structure to include an additional field for distinguishing between Baseline versus Intensive records, and another new field to specify the probability value used for site selection. We foresee that the following assumptions will be successfully met to achieve the project objectives:

1) The PPS site selection program currently used for intensive selective fishery studies can be successfully adapted for the year-round baseline sampling program via applying the expertise and time of our database programmer (Information Technology Specialist) and data manager positions;

2) Existing data management structures will be modified successfully to include an additional field specifying whether a given data record is from the Baseline or Intensive sampling study design, along with a second additional field specifying the probability value associated with site selection; and

3) Field sampling supervisors will be trained successfully to implement the new PPS site selection program as part of their weekly or bi-weekly scheduling of samplers to assigned sites for the baseline sampling program.

The expected schedule for completing key tasks and milestones of the project is shown in section 8.1 below. Drawing on the proven experience of our existing, long-term sampling programs and data management systems, and by employing a collaborative approach with our WDFW Information Technology Specialist and Fisheries Biometrician, we foresee that our proposed project will involve minimal risks and that the above assumptions will be successfully met.

5. Risk

5.1. Project Risk

Table 1: Project Risk

Risk Description	Risk Impact	Risk Probability	Risk Mitigation Approach

6. Final Deliverables

6.1. Additional Reports

6.2. New Data Sets

6.3. New Systems

7. Project Leadership

7.1. Project Leader and Members

Table 2: Project Members

Project Role	Name	Organization	Title

8. Project Estimates

8.1. Project Schedule

Table 3: Project Schedule - Major Tasks and Milestones

#	Schedule Description	Planned Start	Planned Finish	Prerequisites	Milestones

8.2. Cost Estimates

Table 4: Cost Estimates

Project Need	Cost Description	Date Needed	Estimated Cost
TOTAL			$0.00